

## Low voltage dual brush DC motor driver software expansion for STM32Cube

Application	Example for 2 brush DC motors
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion boards X-NUCLEO-IHM12A1
	STM32 Nucleo development board NUCLEO-F401RE, NUCLEO-F334R8, NUCLEO-F030R8, NUCLEO-L053R8



### Features

- Driver layer for the full management of the [STSPIN240](#) low voltage dual brush DC motor driver
- Sample implementation to control up to two bidirectional brush DC motors
- Easy portability across different MCU families, thanks to [STM32Cube](#)
- Free, user-friendly license terms

### Description

The [X-CUBE-SPN12](#) expansion software package for [STM32Cube](#) runs on the [STM32 Nucleo](#) providing management of [STSPIN240](#) to control low voltage dual brush DC motors.

The expansion is built on [STM32Cube](#) software technology to ease portability across different STM32 microcontrollers.

It is compatible with the [NUCLEO-F401RE](#), [NUCLEO-F334R8](#), [NUCLEO-F030R8](#) or [NUCLEO-L053R8](#) development boards connected to an [X-NUCLEO-IHM12A1](#) expansion board.

The software comes with a sample implementation driving two bidirectional low voltage dual brush DC motors.

Product summary	
Low voltage dual brush DC motor driver software expansion for STM32Cube	<a href="#">X-CUBE-SPN12</a>
Low voltage stepper motor driver expansion board based on STSPIN220 for STM32 Nucleo	<a href="#">X-NUCLEO-IHM12A1</a>
Low voltage dual brush DC motor driver	<a href="#">STSPIN240</a>
STM32 Nucleo-64 development board with STM32F401RE/ STM32F334R8/ STM32F030R8/ STM32L053R8 MCUs	<a href="#">NUCLEO-F401RE/</a> <a href="#">NUCLEO-F334R8/</a> <a href="#">NUCLEO-F030R8/</a> <a href="#">NUCLEO-L053R8</a>
Applications	Brushed Motor Industrial Tools

## 1 Detailed description

### 1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- [STM32CubeMX](#) configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- [STM32CubeIDE](#) integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- [STM32CubeProgrammer](#) programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools ([STM32CubeMonRF](#), [STM32CubeMonUCPD](#), [STM32CubeMonPwr](#)) to help developers customize their applications in real-time
- [STM32Cube MCU and MPU packages](#) specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- [STM32Cube expansion packages](#) for application-oriented solutions

### 1.2 How does this software complement STM32Cube?

This software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends [STM32Cube](#) by providing a board support package (BSP) for the [X-NUCLEO-IHM12A1](#) expansion board based on the [STSPIN240](#).

The drivers abstract low-level details of the hardware and allow the middleware components and applications to access functions and data associated with the low voltage dual brush DC motor driver.

The drivers feature:

- [STSPIN240](#) configuration (bridge input and enabling signals)
- Flag interrupt handling (overcurrent and thermal alarm reporting)
- Handling of up to two bidirectional low voltage dual brush DC motors
- [STM32 Nucleo](#) and expansion board configuration (GPIOs, PWMs, IRQs, etc.)

The software package includes a sample application for driving two bidirectional low voltage dual brush DC motors via the [STM32 Nucleo](#) development board user button.

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
23-Sep-2016	1	Initial release
18-May-2021	2	Updated all content to reflect software new release.

**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2021 STMicroelectronics – All rights reserved